

**United States Department of the Interior  
Bureau of Land Management  
Royal Gorge Field Office  
3028 E. Main Street  
Cañon City, CO 81212**

## **Environmental Assessment**

### **Application of Deltamethrin Insecticide to Control Fleas in Prairie Dog Burrows**

DOI-BLM-CO-200-2013-0038 EA

February, 2013



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## **CHAPTER 1 - INTRODUCTION**

### **1.1 IDENTIFYING INFORMATION**

CASEFILE/PROJECT NUMBER (optional):

PROJECT TITLE: Application of Deltamethrin Insecticide to Control Fleas in Prairie Dog Burrows

PLANNING UNIT: Royal Gorge Field Office

LEGAL DESCRIPTION: Throughout the Royal Gorge Field Office Area

APPLICANT: BLM

### **1.2 INTRODUCTION AND BACKGROUND**

BACKGROUND: Gunnison's prairie dogs (*Cynomys gunnisoni*) are stout bodied, squirrel like, burrowing mammal limited to high mountain valleys and plateaus in the southern Rocky Mountains at elevations of 6,000 to 12,000 feet centered around the "Four Corners" area. They range in weight from 650 to 1200 grams and are sexually dimorphic with males being larger in size than females (Pizzimenti, 1973). Gunnison's prairie dog (GUPD) is one of five species under the genus *Cynomys* and shares traits of being primarily herbivorous with diurnal above ground activity peaking during morning and evening hours. Disordered aggregations of loose dirt mounds constitute colonies as compared to higher density and complex mound structures found in their black-tailed prairie dog (*Cynomys ludovicianus*) counterparts. As a result GUPD are seen as the least social and most territorial among their genus. Hibernation occurs approximately from late October until late April to May in the Gunnison Basin with males emerging earlier to establish territories. Copulation usually occurs within two weeks of emergence and a 30 day gestation period yields an average of 3-4 pups per year. Pups remain underground for 4-5 weeks (Pizzimenti, 1973).

According to Fitzgerald (1991) the Gunnison's prairie dog is extinct over much of its historical range, primarily due to poisoning, plague and habitat degradation through urbanization and conversion to agriculture. There are few populations remaining in South Park and in the San Luis Valley. They appear to be extirpated from the extreme upper Arkansas River valley and populations are very small and patchy in other parts of their historic range in Colorado.

Mortality from sylvatic plague (*Yersinia pestis*) in Gunnison's prairie dog (GUPD) is extremely high due to lack of antibody development against the bacterium and can eliminate nearly 100% of their colonies (Eskey and Haas 1940; Lechleitner et al. 1962, 1968; Rayor 1985). A plague outbreak was confirmed in 1981 by isolation of *Y. pestis* from tissues at the Center for Disease Control in Fort Collins, Colorado, and was reported by the Utah State Health Department to have killed 100% of a small GUPD colony in Garfield County (Centers for Disease Control, Fort Collins, Colorado, unpublished 1981 records). Plague is a flea transmitted disease of rodents caused by the bacterium *Y. pestis* that exists in

widespread, discontinuous foci in parts of Africa, Asia and Americas (Poland and Barnes 1979; Velimirovic 1979). Its discovery in North America was in 1908 in wild populations of rodents near San Francisco (McCoy 1908; Wherry 1908). With fleas as the spreading vector among rodents it can infect them to varying degrees from little or no overt disease (reservoir) to expedited mortality, based on antibody resistance. Infected fleas enter burrows and are exchanged between prairie dogs by passive or social interaction. Fleas may be transmitted to predators of prairie dogs and transported to a previously uninfected rodent colony (Salkeld et al, 2007; Tripp et al, 2009). By these methods, combined with chance of favorable environments and receptive hosts, this pathogen has since dispersed throughout the western United States and has made its way as far east as South Dakota by 2007. This is the same “black” plague transmitted from rodents (sylvatic) to humans (bubonic) in the Dark Ages of Europe causing massive human mortalities. Today from a public health standpoint, fewer than 3% of human infected plague cases are caused by prairie dogs or their fleas (Center for Disease Control, Fort Collins, Colorado, unpublished records). Plague control is therefore not a public health concern but a conservation issue.

Deltamethrin pesticide has shown to be effective in controlling fleas and thus the spread of plague throughout prairie dog colonies (Biggins et al, 2010). Deltamethrin is a granular insecticide delivered by a wand as deep as possible into rodent burrows and then rotated to coat the perimeter soil and is then applied from there onto the rodents when they enter and exit the burrow system. The intent of a dusting effort is to reduce flea populations, as the major known vector of plague, in identified conservation priority colonies such that the risk of GUPD exposure to plague would be significantly reduced. New dusting would support expanded Colorado Parks and Wildlife (CPW) research studying the potential efficacy of deltamethrin, also commercially known as Delta Dust®, on treated compared to control areas. In a similar study, control colonies in northwestern Colorado were decimated by plague while the treatment colonies remained intact (Dan Tripp, CPW pers. comm.). These treatments would serve a conservation effort to keep this species from federal listing status and double as study areas to evaluate the efficacy of deltamethrin specifically within GUPD populations.

***Pertinent Characteristics of Deltamethrin:*** Deltamethrin, as the active ingredient of Delta Dust (0.05%), is a synthetic pyrethroid insecticide that provides broad spectrum and residual control of crawling arthropods.

**Soil Activity:** Degradation occurs relatively rapidly in soil (half life of 11-72 days) and is particularly unstable in alkaline environments (World Health Organization’s International Programme on Chemical Safety, 1990; <http://www.inchem.org/documents/ehc/ehc/ehc97.htm>). Studies have documented that earthworm populations and soil microorganism activity remained equal to control sites at application rates of 12.5 grams a.i. per ha (this application would involve average rates of 0.1 gram a.i. per ha).

**Mobility:** This chemical is not mobile in the environment because of its strong adsorption to soils and sediments and insolubility in water. Deltamethrin has been found to be practically insoluble in water and essentially immobile in soil columns (96-97% remains in upper inch of clay, loam and sand soils) and is unlikely to leach in soils with a clay content higher than 0.03% (i.e., sand).

**Toxicity:** Under laboratory conditions, Deltamethrin is highly toxic to fish and aquatic invertebrates with LC<sub>50</sub><sup>1</sup> values ranging from 0.4 to 5 micrograms per liter (ppb). However, extensive field studies have demonstrated that this high potential toxicity is not realized. Low application rates, strong

adsorption to suspended sediments, and relatively rapid chemical degradation dramatically reduces bioavailability. None of 300 fish died or acted abnormally in ponds where soils were treated at rates of 125 grams a.i./ha and flooded after 31 days.

Toxicity for birds is very low ( $LC_{50}$  range of 5000-10,000 mg/kg) and practically nontoxic to mammals ( $LC_{50}$  range of 6500-22,000 mg/kg). Quail force-fed 1mg ai per day for 34 days displayed no adverse reproductive effects.

There is no information suggesting that Deltamethrin has any tendency to bioaccumulate in animal tissues and the chemical has been determined to be nonmutagenic and nonteratogenic (<http://www.ace.orst.edu/info/extoxnet/pips/deltanet.htm>).

<sup>1</sup>  $LC_{50}$  : An  $LC_{50}$  value is the concentration of a material that will kill 50% of the test subjects when administered as a single exposure.

### Role of Agencies Involved

#### Bureau of Land Management

The United States Department of Interior BLM has the authority for conservation of GUPD through (1) the Federal Land Management Policy Act (FLPMA) of 1976 (43 U.S.C. 1701 et seq.: 90 stat. 2743; PL 94-579; (2) the Sikes Act, Title II (16 U.S.C. 670 et seq.), as amended; and (3) The BLM Manual 6840, Special Status Species Management (BLM: sensitive species) while the GUPD is under review for listing under the Endangered Species Act (ESA) (US Fish and Wildlife Service: candidate species). Specifically, the FLPMA guidance on sensitive species authorizes that “the public lands would be managed in a manner that would protect the quality of scientific, scenic, historical, ecological, environmental, air, atmospheric, water resource, and archeological values; that, where appropriate, would preserve and protect certain public lands in their natural condition; that would provide food and habitat for fish and wildlife and domestic animals (43 USC 1701 Sec. 102 (a) (8)).”

Section 06 (C) of the 6840 Manual gives the following guidance on candidate species: “Consistent with existing laws, the BLM shall implement management plans to conserve candidate species and their habitats and shall ensure that actions authorized, funded, or carried out by the BLM do not contribute to the need for the species to become listed.” Section 12 of the 6840 Manual states: “Actions authorized by the BLM shall further the conservation of federally listed and other special status species and shall not contribute to the need to list any special status species under provisions of the ESA, or designate additional sensitive species under the provisions of this policy.” The Department of Interior Fish and Wildlife Policy: State-Federal Relationship (43 CFR Part 24.4 (c)) states in part that “...the Secretary of Interior is charged with the responsibility to manage non-wilderness BLM lands for multiple uses, including fish and wildlife conservation.

It would be the role of the BLM as initiated through this document to prepare a comprehensive environmental assessment (EA) for all actions proposed and to weigh those actions into the NEPA process. The BLM would assist in providing guidance for implementation of the proposed actions and ensure that these actions are within the scope and of the proposed action. Assistance would be given to CPW and United States Geological Service (USGS) researchers on identifying priority areas for treatment as well as control plots for research. The BLM may assist to provide staff and other resources

needed to perform dusting operations when available. The BLM would provide pesticide supervision in the event that no other licensed applicator is present among partners.

## Colorado Parks and Wildlife

The CPW has responsibility for the management and conservation of wildlife resources within the state borders, including the conservation and management of threatened and endangered species, as defined and directed by state laws (i.e. Colorado Revised Statutes, Title 33 Article 1). Title 33 Article 1-101, Legislative Declaration states: “It is the policy of the State of Colorado that the wildlife and their environment are to be protected, preserved, enhanced, and managed for the use, benefit, and enjoyment of people of this state and its visitors. It is further declared to be the policy of this state that there shall be provided a comprehensive program designed to offer the greatest possible variety of wildlife-related recreational opportunity to the people of this state and its visitors and that, to carry out such a program and policy, there shall be a continuous operation of planning, acquisition, and development of wildlife habitats and facilities for wildlife-related opportunities.”

In addition, the 5-year Strategic Plan for the CPW, adopted by the Colorado Wildlife Commission on January 11, 2002, emphasizes the importance of wildlife conservation and maintenance of healthy, diverse and abundant wildlife. “The CPW defines species conservation as conserving, protecting, and enhancing Colorado’s native wildlife, by taking the actions necessary to assure the continued existence of each species and thereby precluding or eliminating the need for state/or federal listing. The CPW would form partnerships with landowners, land management agencies, and others to manage, protect, enhance, and restore wildlife and their habitat. The CPW would lead efforts to monitor wildlife communities and manage them as needed to prevent their decline. The CPW encourages partnerships to share in the vision to protect, enhance, and restore wildlife communities that need assistance to survive.”

It would be the role of the CPW to initiate and implement on the ground dusting treatments, associated research, and follow up monitoring of plague abatement actions. It would be the responsibility of the CPW to provide training, staffing, supplies, equipment and other logistical means necessary to apply treatments and associated research. Ultimately, CPW is the agency responsible for the management of this species in Colorado.

### **1.3 PURPOSE AND NEED**

The purpose of the action is to reduce flea populations, as the major known vector of sylvatic plague, in an area such that the risk of Gunnison’s prairie dog exposure to plague would be significantly reduced.

The need is to provide for the conservation of the GUPD through the authority established by (1) the Federal Land Management Policy Act (FLPMA) of 1976 (43 U.S.C. 1701 et seq.: 90 stat. 2743; PL 94-579; (2) the Sikes Act, Title II (16 U.S.C. 670 et seq.), as amended; and (3) The BLM Manual 6840, Special Status Species Management (BLM: sensitive species).

### **1.4 DECISION TO BE MADE**

The BLM will decide whether to approve the proposed “Application of Deltamethrin Insecticide to Control Fleas in Prairie Dog Burrows” project based on the analysis contained in this Environmental Assessment (EA). This EA will analyze the application of Deltamethrin to prairie dog burrows on BLM

managed lands. The BLM may choose to: a) accept the project as proposed, b) accept the project with modifications/mitigation, c) accept an alternative to the proposed action, or d) not authorize the project at this time. The finding associated with this EA may not constitute the final approval for the proposed action.

## **1.5 PLAN CONFORMANCE REVIEW**

**PLAN CONFORMANCE REVIEW:** The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

**Name of Plan:** Royal Gorge Resource Management Plan

**Date Approved:** 05/13/96

**Decision Number/Page:** 2-25, 4-25, 5-31, 6-28, 7-27, 8-23, 10-23

**Decision Language:** Special status animal species habitat will be protected through elimination of conflicting use.

In January 1997, the Colorado State Office of the BLM approved the Standards for Public Land Health and amended all RMPs in the State. Standards describe the conditions needed to sustain public land health and apply to all uses of public lands.

**Standard 1:** Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes.

**Standard 2:** Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbance such as fire, severe grazing, or 100-year floods.

**Standard 3:** Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential.

**Standard 4:** Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

**Standard 5:** The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado.

Because standards exist for each of these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in Chapter 3 of this document.

## **1.6 SCOPING, PUBLIC INVOLVEMENT AND ISSUES**

**1.5.1 Scoping:** NEPA regulations (40 CFR §1500-1508) require that the BLM use a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are

to allow public participation to identify issues, concerns, and potential impacts that require detailed analysis.

Persons/Public/Agencies Consulted: Scoping, by posting this project on the Royal Gorge Field Office NEPA website, was the primary mechanism used by the BLM to initially identify issues. No comments were received.

Issues Identified:

No issues were identified during public scoping.

## **CHAPTER 2 - PROPOSED ACTION AND ALTERNATIVES**

### **2.1 INTRODUCTION**

The purpose of this chapter is to provide information on the Proposed Action and Alternatives. Alternatives considered but not analyzed in detail are also discussed.

### **2.2 ALTERNATIVES ANALYZED IN DETAIL**

#### **2.2.1 Proposed Action**

The current site specific proposed action will treat approximately 700 acres of GUPD colonies within the RFGO (Figure 3). GUPD colonies would be treated annually with a 0.05% formulation of Deltamethrin (Delta Dust), a synthetic pyrethroid insecticide labeled for the control of fleas in rodent burrows. Treatment would consist of individually metering 4 grams of product (0.002 grams active ingredient (a.i.)) into the entrance of prairie dog burrows with shoulder-carried application equipment or motorized all-terrain vehicles (ATV). Application would be conducted by, or under the direct supervision of BLM biologists and/or CPW Wildlife Health Program staff appropriately certified as a pesticide applicator in Colorado. Treatment activities would occur over a 2-3 week period between March and October by personnel appointed by the CPW. Treatments would continue annually as needed or until a more effective method is developed.

Product transport, mixing, application, storage, cleanup, and use of protective gear would be consistent with the label specifications. All dusting equipment (“delta-dusters” hand fumigators’ etc..) would be individually calibrated to 4-5 grams of dust per application. ATV’s may be used in large application areas, however ground application would take place to minimize ground disturbance in the vicinity of identified archeological sites. CPW and BLM biologists would integrate measures necessary to avoid disruption of burrowing owl reproductive functions such as nesting and brood rearing areas or habitats.

Because the treatment and application is specifically directed at controlling flea populations in prairie dog burrows, the proposed application rate is about 150 times lower than recommended rates (i.e., label prescribed) for customary home and agricultural use. These techniques have been shown to be effective at controlling fleas (weather permitting) for around 10 months (Biggins et. al. 2010). The product would be placed down individual prairie dog burrows; it would remain essentially unavailable to terrestrial animals, including livestock and big game.

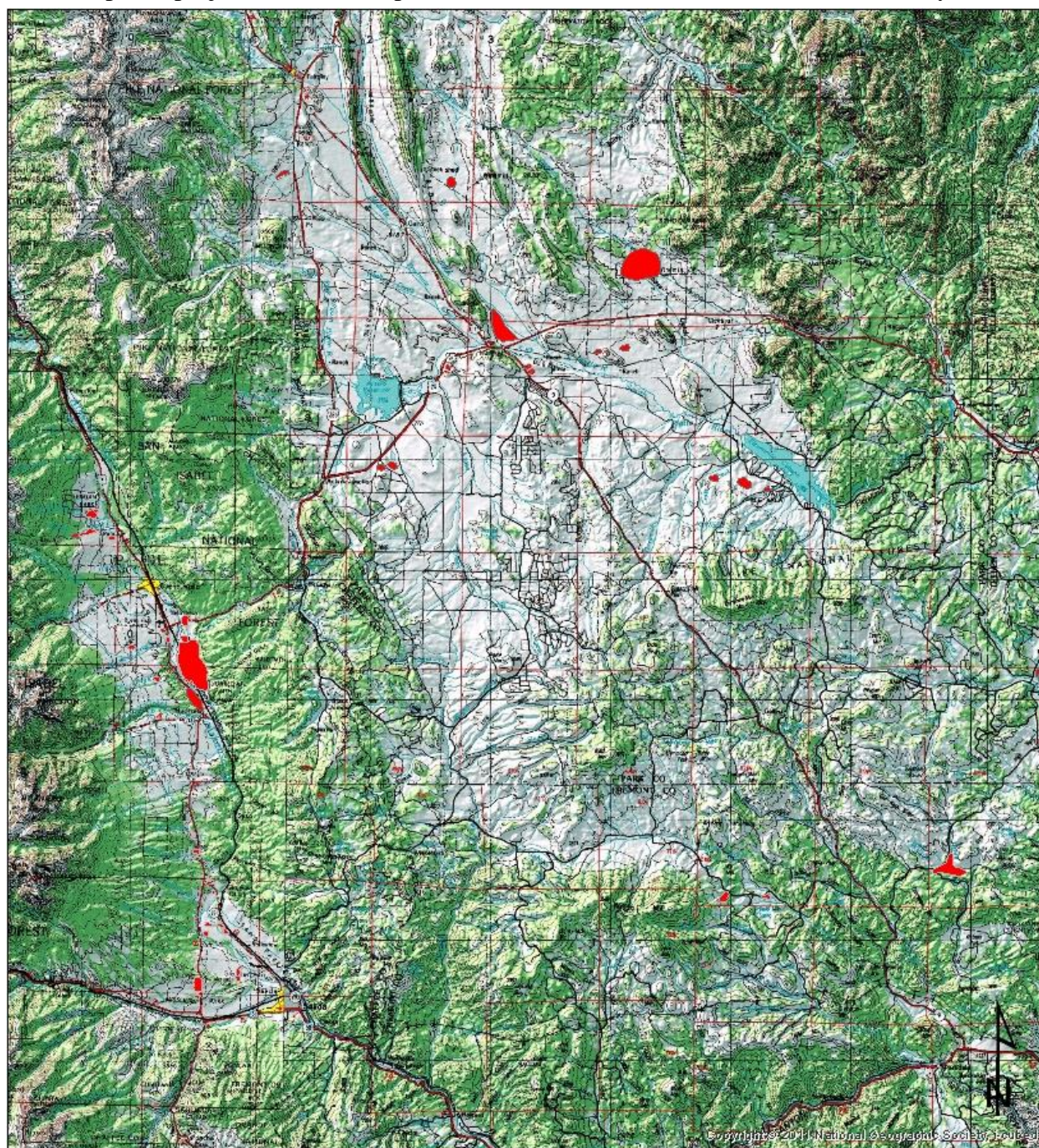


As a continued effort all populations of GUPD in the RFGO would be monitored annually to measure success of the above proposed actions. Monitoring would be conducted by collecting samples from post treatment areas and comparing GUPD populations in those colonies to control colonies by CPW personnel. Population data would be collected and documented by CPW and BLM staff on these project sites. Overall active GUPD populations would be updated and documented annually as a general monitoring effort by the BLM on lands within the RFGO.

Populations would be recorded and reported to the US Fish and Wildlife Service upon request to analyze up to date range-wide population standings. A sample of priority GUPD colonies that are dusted would be monitored by the CPW Wildlife Health Program as part of a research project to evaluate plague management strategies. At these sites fleas would be collected from GUPD burrows to determine the effect of Deltamethrin on flea abundance and flea species composition. Sampling would also occur in control areas (no Deltamethrin) that are comprised of similar habitat. This sampling may continue until necessary to determine the duration of the effects of Deltamethrin on flea abundance. Fleas may be collected from captured GUPD in order to determine effects of Deltamethrin on flea abundance on hosts. Trapping sessions would occur from May to October and last between 2 to 4 days in each area depending on the capture rates and availability of personnel.



Figure 1. Proposed project overview map near Salida, Buena Vista, Hartsel, and Canon City, Colorado.



## APPLICATION OF DELTAMETHRIN

DOI-BLM-CO-200-2013-0038

■ Active and Historic GUPD colonies

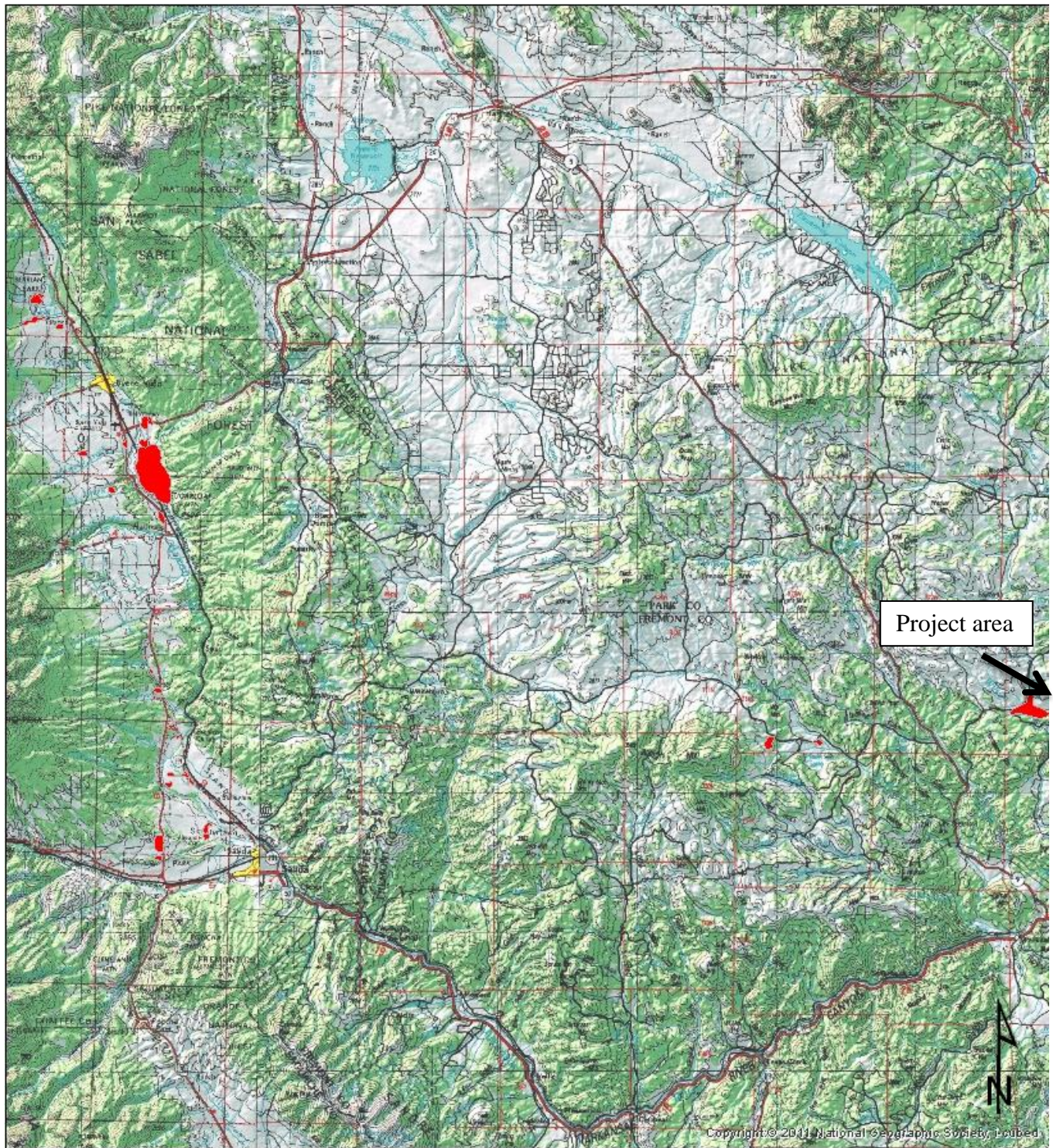
0 3.75 7.5 15 Miles

**NOTE TO MAP USERS**  
No warrantee is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land records of the data providers should be checked or current status on any specific tract of land.



Figure 2. Known locations of Gunnison's prairie dog colonies in the Bureau of Land Management-Royal Gorge Field Office. Colonies were mapped by Colorado Parks and Wildlife, 2012.





## APPLICATION OF DELTAMETHRIN

DOI-BLM-CO-200-2013-0038



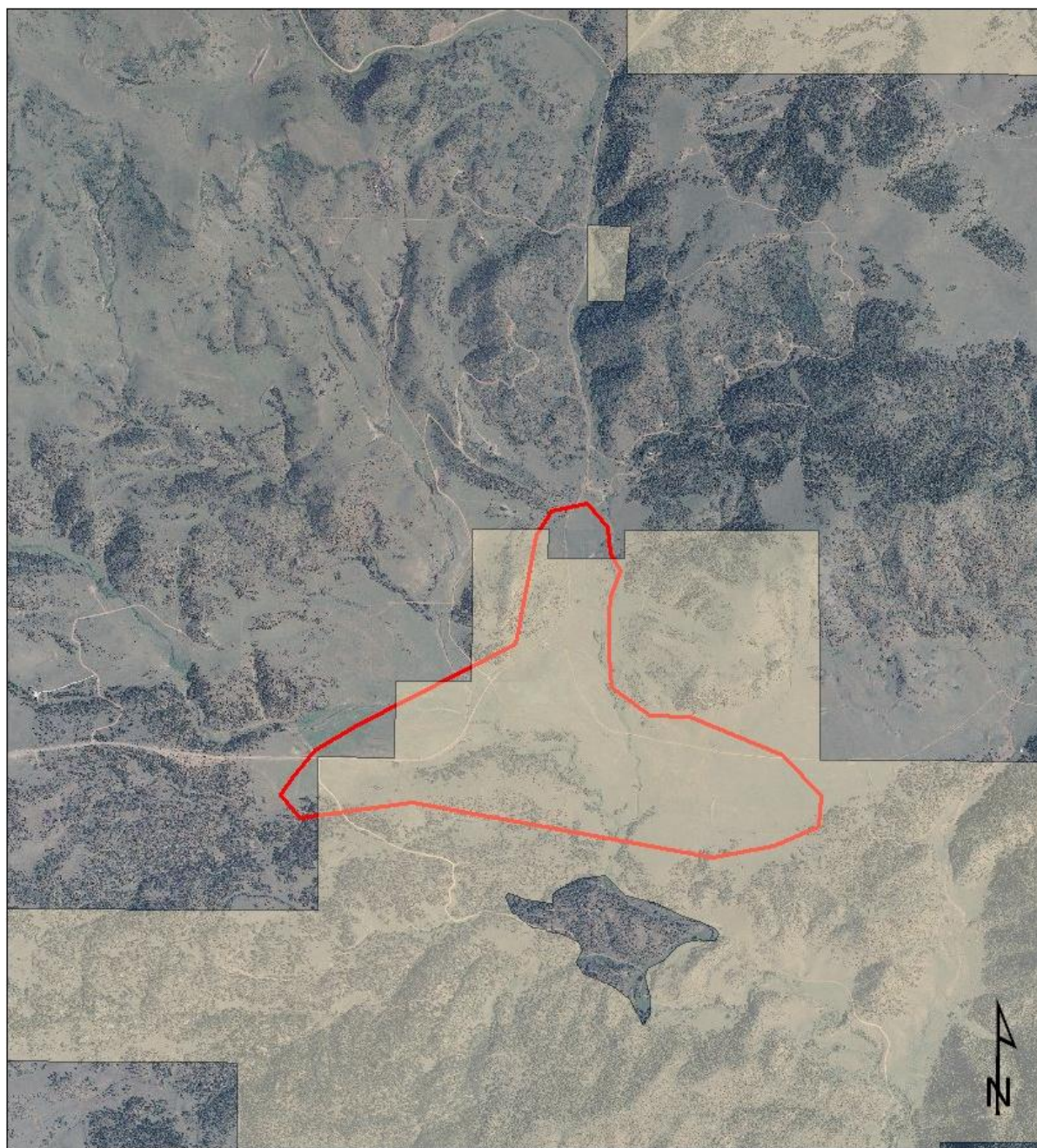
■ Active GUPD colonies 2010-2012

0 3.25 6.5 13 Miles

**NOTE TO MAP USERS**  
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land records of the data providers should be checked or current status on any specific tract of land.



Figure 3. Proposed deltamethrin application site off High Park Road near Deer Haven. The site is approximately 700 acres located at T16S R71W, Parts of Sections 19,20,29,30. Bureau of Land Management-Royal Gorge Field Office, 2013.



# APPLICATION OF DELTAMETHRIN

DOI-BLM-CO-200-2013-0038

- BLM Managed Lands
- Active GUPD colonies 2010-12

0 0.225 0.45 0.9 Miles

**NOTE TO MAP USERS**  
No warrantee is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land records of the data providers should be checked or current status on any specific tract of land.

### 2.2.2 No Action Alternative

No pesticide would be applied to prairie dog burrows.

## CHAPTER 3 - AFFECTED ENVIRONMENT AND EFFECTS

### 3.1 INTRODUCTION

This section provides a description of the human and natural environmental resources that could be affected by the Proposed Action and presents comparative analyses of the direct, indirect and cumulative effects on the affected environment stemming from the implementation of the actions under the Proposed Action and other alternatives analyzed.

#### 3.1.1 Interdisciplinary Team Review

The following table is provided as a mechanism for resource staff review, to identify those resource values with issues or potential impacts from the proposed action and/or alternatives. Those resources identified in the table as impacted or potentially impacted will be brought forward for analysis.

<u>Resource</u>	<u>Initial and date</u>	<u>Comment or Reason for Dismissal from Analysis</u>
<u>Air Quality</u> <i>Ty Webb, Chad Meister, Melissa Hovey</i>	TW, 2/15/13	This action will not result in any significant impact to air quality.
<u>Geology/Minerals</u> <i>Stephanie Carter, Melissa Smeins</i>	SSC, 3/18/13	This action will not result in any significant impact to mineral resources.
<u>Soils</u> <i>John Smeins</i>	JS, 2/25/13	See analysis below.
<u>Water Quality</u> <u>Surface and Ground</u> <i>John Smeins</i>	JS, 2/25/13	Due to the proposed application methods, locations, and physical properties of deltamethrin, it is not expected that the chemical would reach or impact either surface or ground water.
<u>Invasive Plants</u> <i>John Lamman</i>	JL, 03/14/2013	This action is not likely to affect the spread of invasive plants
<u>T&amp;E and Sensitive Species</u> <i>Matt Rustand</i>	MR, 2/21/13	See analysis below.
<u>Vegetation</u> <i>Jeff Williams, Chris Cloninger, John Lamman</i>	CC, 2/27/13	See analysis below.
<u>Wetlands and Riparian</u> <i>Dave Gilbert</i>	DG, 02/19/13	This treatment will not occur in wetlands or riparian areas on public land. Deltamethrin transport limitations will keep it from moving offsite from treated burrows to nearby wetlands.

<b><u>Resource</u></b>	<b><u>Initial and date</u></b>	<b><u>Comment or Reason for Dismissal from Analysis</u></b>
<b><u>Wildlife Aquatic</u></b> <i>Dave Gilbert</i>	DG, 02/19/13	This chemical is known to be toxic to aquatic wildlife. It is not being used in public land wetland, riparian or aquatic habitat; however the prairie dog colony does surround a headwater wet area. (See further analysis).
<b><u>Wildlife Terrestrial</u></b> <i>Matt Rustand</i>	MR, 2/21/13	See analysis below.
<b><u>Migratory Birds</u></b> <i>Matt Rustand</i>	MR, 2/21/13	See analysis below.
<b><u>Cultural Resources</u></b> <i>Monica Weimer, Erin Watkins</i>	MMW, 2/13/13	Nature of the undertaking is such that it poses no risk of affecting historic properties.
<b><u>Native American Religious Concerns</u></b> <i>Monica Weimer, Erin Watkins</i>	MMW, 2/13/13	Nature of the undertaking is such that it poses no risk of affecting sacred sites or areas.
<b><u>Economics</u></b> <i>Dave Epstein, Martin Weimer</i>	mw, 2/13/13	This action will not result in significant impacts to the socio-economics of the region.
<b><u>Paleontology</u></b> <i>Melissa Smeins, Stephanie Carter</i>	SSC, 3/18/13	This action will not result in any significant impact to paleontological resources.
<b><u>Visual Resources</u></b> <i>Kalem Lenard</i>	KL, 2/19/2013	The proposed action would not impact visual resources.
<b><u>Environmental Justice</u></b> <i>Martin Weimer</i>	mw, 2/13/13	The proposed action affects areas that are rural in nature. The proposal will not have a disproportionately high or adverse environmental effect on minority or low-income populations.
<b><u>Wastes Hazardous or Solid</u></b> <i>Stephanie Carter</i>	SSC, 3/18/13	The EA states that, "product transport, mixing, application, storage, cleanup, and use of protective gear would be consistent with the label specifications." In addition, any excess material needs to be managed in accordance with label specifications and or disposed of according to pertinent State and Federal regulations. MSDS sheets should be available during timeframe of product management. The project proponent will be responsible for adhering to all applicable local, State and Federal regulations in the event of a spill, which includes following the proper notification procedures in BLM's Spill Contingency Plan.
<b><u>Recreation</u></b> <i>Kalem Lenard</i>	KL, 2/19/2013	The proposed action would not negatively impact recreation resources.
<b><u>Farmlands Prime and Unique</u></b> <i>Jeff Williams, Chris Cloninger, John Lamman</i>	CC, 2/21/13	There are no prime or unique farmlands in the project area.
<b><u>Lands and Realty</u></b> <i>Steven Craddock, Vera Matthews</i>	SRC 3/18/2013	This action will not result in significant impacts to the lands and realty projects in the area.
<b><u>Wilderness, WSAs, ACECs, Wild &amp; Scenic Rivers</u></b>	KL, 2/19/2013	This resource is not present within the project area.

<b><u>Resource</u></b>	<b><u>Initial and date</u></b>	<b><u>Comment or Reason for Dismissal from Analysis</u></b>
<i>Kalem Lenard</i>		
<b><u>Wilderness Characteristics</u></b> <i>Kalem Lenard</i>	KL, 2/19/2013	This resource is not present within the project area.
<b><u>Range Management</u></b> <i>Jeff Williams, Chris Cloninger, John Lamman</i>	CC, 2/27/13	Livestock operations would not be significantly affected by the proposed action. No changes to livestock management are necessary. (See further analysis).
<b><u>Forest Management</u></b> <i>Ken Reed</i>	KR, 3/14/13	The proposed action shall have no impacts to forest management or forest health.
<b><u>Cadastral Survey</u></b> <i>Jeff Covington</i>	JC, 2/13/13	This action will not result in any significant impact to cadastral survey markers.
<b><u>Noise</u></b> <i>Martin Weimer</i>	mw, 2/13/13	This action will not result in any significant impacts due to noise or result in any increased noise levels.
<b><u>Fire</u></b> <i>Bob Hurley</i>	BH, 3/19/13	The proposed action will not create or elevate risk factors leading to unwanted wildland fire ignition.
<b><u>Law Enforcement</u></b> <i>Steve Cunningham</i>	mw fpr SC, 2/13/13	There are no law enforcement issues associated with this action.

The affected resources brought forward for analysis include:

- Soils
- Threatened, Endangered, and Sensitive Species
- Wildlife Aquatic
- Wildlife Terrestrial
- Migratory Birds
- Vegetation
- Range Management

## **3.2 PHYSICAL RESOURCES**

### **3.2.1 SOILS (includes a finding on standard 1)**

**Affected Environment:** Soils within the proposed treatment polygon and the amount of the area they make up are as follows:

Adderton loam, 2 to 6 percent slopes	11%
Hoodle loam, 5 to 20 percent slopes	8%



Rogert very gravelly sandy loam, warm, 10 to 40 percent south slopes	4%
Rogert very gravelly sandy loam, warm, 15 to 40 percent slopes	8%
Troutdale-Rogert, warm, complex, 2 to 15 percent slopes	9%
Youga sandy loam, 3 to 10 percent slopes	60%

Most of the target area would most likely be in the Youga sandy loam that has a pH of 6.7. All soils within the proposed treatment area have a near neutral pH of between 6.7 and 7.0.

### Environmental Effects

#### Proposed Action

Direct and Indirect Impacts: The Proposed Action would apply Deltamethrin dust directly into existing prairie dog burrows. This limited amount of application would leave small, isolated areas throughout the area where soils would have residual chemical content. Degradation of the chemical in these areas should occur relatively rapidly considering the pH of the soil and limited mobility of Deltamethrin. Overall, impacts to soils would be very minor and short term.

Protective/Mitigation Measures: None

Cumulative Impacts: None

#### No Action Alternative

Direct and Indirect Impacts: If no action is taken, soils would stay as they currently are and there would be no new impacts.

Protective/Mitigation Measures: N/A

Finding on the Public Land Health Standard for Upland Soils: Soils in the area are meeting standards currently. The implementation of the Proposed Action would not cause the soils to not meet standards in the future.

## **3.3 BIOLOGICAL RESOURCES**

### **3.3.1 THREATENED, ENDANGERED AND SENSITIVE SPECIES**

Affected Environment: Burrowing Owl (*Athene cunicularia*): This species is listed as “State Threatened” within the state of Colorado and may occupy Gunnison’s prairie dog (GUPD) habitat in the RGFO. The birds are known to be active during day and night with larger insects (grasshoppers/crickets and beetles) and small mammals (mice and voles) comprising a large portion of their diet during the breeding season.

Mountain Plover: Mountain plover are found throughout the RGFO in suitable habitats. While the species is relatively rare they can be found generally in open, flat tablelands that display some function of disturbance such as drought, grazing, fire, etc. While the status of mountain plover in proposed action area is unknown, it is known that plovers return to South Park each spring to court and nest. Therefore, the probability a mountain plover will use the shortgrass vegetation located within in the project area is greater than zero.

Ferruginous Hawk (*Buteo regalis*): This species is listed by the State of Colorado as a species of “Special Concern”. No nest sites are documented within the action area; however, occasional sightings are made in the fall indicating that this species may utilize this area for migratory transition. Because of their heavy diet of prairie dogs and lagomorphs (<90%), all actions proposed are intended to protect this prey base and in turn benefit this species.

Bald eagle (*Haliaeetus leucocephalus*): Bald eagles are considered a BLM “Sensitive Species” which use riparian areas along the Arkansas River system during the winter when Deltamethrin would exist only as undetectable residue in prairie dog burrows. There would be no reasonable likelihood that bald eagles would be exposed to deltamethrin.

Gunnison’s prairie dog (*Cynomys gunnisoni*): GUPD is recognized as an important species from which many other species depend and benefit from their existence. Declining species of raptors, such as Ferruginous hawks (*Buteo regalis*) depend on GUPD as a food source and Burrowing Owls (*Athene cunicularia*) occupy maintained prairie dog burrows as nesting and brood rearing habitat. The declines of such species are thought to be directly correlated with declines of prairie dogs (Culley, 1984). While ecologically considered a keystone species for creating species diversity, prairie dogs are considered competitors with domestic livestock because of their common food source and stock producers believe burrows cause cattle and horses harm. Historically, many people have regarded prairie dogs as rodent pests and have eliminated them in most areas.

Arkansas River fishes [including greenback cutthroat trout (*Oncorhynchus clarki stomias*)]: is a federally listed as “Endangered” and may be affected in West Antelope Creek. However, it is highly unlikely that this proposed action would have an impact.

### Environmental Effects

#### Proposed Action

Direct and Indirect Impacts: Deltamethrin, as the active ingredient of Delta Dust® (0.05%), is an insecticide that provides broad spectrum and residual control of crawling arthropods.

Toxicity: Under laboratory conditions, Delta Dust is highly toxic to fish and aquatic invertebrates with LC<sub>50</sub><sup>1</sup> values ranging from 0.4 to 5 micrograms per liter (ppb). However, extensive field studies have demonstrated that this high potential toxicity is not realized. Low application rates, strong absorption to suspended sediments and relatively rapid chemical degradation dramatically reduces bioavailability. None of 300 fish died or acted abnormally in ponds where soils were treated at rates of 125 grams a.i./ha and flooded after 31 days.

Toxicity for birds is very low (LC<sub>50</sub> range of 5000-10,000 mg/kg) and practically nontoxic to mammals (LC<sub>50</sub> range of 6500-22,000 mg/kg). Quail force-fed 1mg ai per day for 34 days displayed no adverse reproductive effects.

There is no information suggesting that Deltamethrin has any tendency to bioaccumulate in animal tissues and the chemical has been determined to be noncarcinogenic and have no deleterious effects. (<http://www.ace.orst.edu/info/extoxnet/pips/deltanet.htm>).

<sup>1</sup> *LC<sub>50</sub> : An LC<sub>50</sub> value is the concentration of a material that would kill 50% of the test subjects when administered as a single exposure*

Burrowing Owl: This species would be expected to frequently and consistently be exposed to Deltamethrin, either through direct burrow contact or ingestion of invertebrate prey associated with prairie dog burrows. It is unreasonable to believe that owls would be exposed to or capable of ingesting quantities of Deltamethrin sufficient to cause direct mortality. For example, to reach LC<sub>50</sub> levels, a burrowing owl would have to ingest product equivalent to that dispensed in 300 burrows (i.e., at least 3 pounds of product or 10 times the owls' body weight). At 4-5 grams per burrow this makes deleterious effects from ingestion very unlikely.

Evidence does suggest that use of insecticides that are highly toxic to birds (e.g., carbofuran; LC<sub>50</sub> of 0.2 to 12 mg/kg) in close proximity to burrowing owl nests can reduce reproductive performance. In one study, carbofuran sprayed within 50 m of nest burrow caused a 54% reduction in the number of young per nest (Karhu, R.R. 1999. *Field trials of technical pyriproxyfen (Nylar) and Pyraperm in black-tailed prairie dog (Cynomys ludovicianus) towns on the Rocky Mountain Arsenal National Wildlife Refuge, Colorado. M.S. Thesis*).

Although it is unlikely that burrowing owls would be adversely affected by inadvertent treatment with Deltamethrin, as a means of preventing unnecessary disruption of ongoing nest attempts, treatment of burrows that are identified as nest sites or that display evidence of burrowing owl occupation would be avoided. Burrowing owls were commonly observed in areas treated with Deltamethrin in Montana in 1993, 1996 and 1997 and after dusting efforts at the Rocky Mountain Arsenal in Colorado.

Because burrowing owls are dependent on a consistent supply of prairie dog burrows for nesting, efforts to bolster prairie dog populations through disease control work would ostensibly enhance nest habitat conditions for owls. Owls in larger, well-populated prairie dog colonies are more likely to return to nesting sites, experience lower rates of nest depredation, and have higher rates of nesting success than owls in smaller colonies or in colonies with lower densities of prairie dogs.

Burrowing owls may indirectly be affected by reduced arthropod populations for food source as a result of Deltamethrin application. Deltadust® application that is proposed in this document is subterranean and targeting flea populations, yet some non-target crawling insects may be controlled as well within the localized burrow environment. Because application is isolated to subterranean burrows and the characteristics of Deltamethrin allow very little soil mobility, it is unlikely to have any adversely large effect on insects as a prey base for owls. Due to the fact that a majority of the burrowing owls diet consists of mammal ingested biomass; this may imply that insects are a supplementary food source and alone are not a strong limiting factor to the species populations.

Similarly, studies referred to in Utah BLM's Deltamethrin application environmental analysis (UT-080-2001-217) indicated that relatively heavy application (0.308 g active ingredient per burrow) of permethrin, a related insecticide, on the Rocky Mountain Arsenal in Colorado, did not consistently affect insect orders that commonly form large fractions of burrowing owl and sage grouse diets. Coleopterans (beetles) seemed to decline in some plots with some sampling techniques, but not in other plots or even within the same plots using different techniques. There was no evidence for orthopteran (e.g. crickets and grasshoppers) declines.

Mountain plover: It would remain highly improbable that plovers would be directly or indirectly exposed to Deltamethrin (virtually identical to sage grouse discussion found in Terrestrial Wildlife section below). Although the mountain plover is dependent on terrestrial invertebrates throughout the year, invertebrates associated with prairie dog burrows and serving as potential vectors of deltamethrin would be expected to venture out of these subsurface environments at night and remain largely unavailable to birds that forage during daylight hours. Because toxicity for birds is very low (LC50 range of 5000-10,000 mg/kg) and the chemical is rapidly metabolized and excreted by animals (i.e., no demonstrated tendency to bioaccumulate), even improbable brief and trace level exposure to Deltamethrin would not be expected to have any adverse effect on mountain plover. Use of ATV/UTV during the nesting season (April 1-June 30) could take nests and/or fledglings.

Ferruginous Hawk: No nest sites are documented within the action area; however, occasional sightings are made in the fall indicating that this species may utilize this area for migratory transition. Because of their heavy diet of prairie dogs and lagomorphs (<90%), all actions proposed are intended to protect this prey base and in turn benefit this species. No potential negative direct or indirect effects were identified as a result of proposed actions. A positive benefit is the retention of Gunnison's prairie dogs in the RGFO that will maintain a food resource for ferruginous hawks.

Bald Eagle: Bald eagles are considered a BLM "Sensitive Species" which use riparian areas along the Arkansas River system during the winter when Deltamethrin would exist only as undetectable residue in prairie dog burrows. There would be no reasonable likelihood that bald eagles would be exposed to deltamethrin.

Gunnison's prairie dog: All actions in this plan are targeted to benefit this species and no negative effects are anticipated as a result. The application of deltamethrin will kill fleas, the plague carrying vector, inhabiting prairie dogs and prairie dog burrow systems allowing satellite populations of Gunnison's prairie dogs to persist at current known locations.

Arkansas river fishes (including greenback cutthroat trout): Due to Deltamethrin's immobility in clay soils, insolubility in water, strong adsorption to suspended solids, rapid degradation in alkaline environments, and the isolation of prairie dog burrows from surface drainage systems, there is no reasonable likelihood that detectable levels of Deltamethrin would be available for transport to any local channel system, much less transported considerable distances in sediment-laden ephemeral systems to aquatic habitats associated with the Arkansas River. In an effort to eliminate negative indirect effects to the Arkansas aquatic biota, all actions would be accomplished outside of a 50 meter buffer from live water and any foreseeable contributing water sources (seeps and springs) to the Arkansas watershed unless an impermeable barrier exists (ie. paved roads or dams where percolation is not possible). Although GUPD habitat is not anticipated to overlap with these areas, Deltamethrin is identified as having adverse impacts to aquatic invertebrates and aquatic ecosystems so it would be omitted from action in those rare occasions.

Delta Dust® application would take place in the spring when high wind events are likely. Minimize dust from drifting if windy conditions exist to avoid incidental contact with any sensitive or threatened plant species in the area. If possible, applications should take place during the morning in an attempt to avoid high wind events.

Protective/Mitigation Measures: In an effort to eliminate negative indirect effects to the Arkansas aquatic biota, all actions would be accomplished outside of a 50 meter buffer from live water and any foreseeable contributing water sources (seeps and springs) to the Arkansas watershed unless an impermeable barrier exists (ie. paved roads or dams where percolation is not possible).

A clearance survey will be conducted prior to ATV/UTV use if proposed action is to occur during the mountain plover nesting season (April 1 – June 30).

Burrowing owl burrows encountered during dusting operations with evidence of burrowing owl occupancy (e.g. white wash, pellets, feathers) will not be treated.

Minimize dust from drifting if windy conditions exist to avoid incidental contact with any sensitive or threatened plant species in the area.

Cumulative Impacts: Since all efforts associated with the proposed actions would be to avoid these species and would not defer current operations, it is not expected to increase cumulative impacts. The intent of this plan is to provide stable conditions for viable GUPD populations and in turn optimize species diversity within short grass ecosystems.

All proposed actions that could potentially have any direct or indirect impact to sensitive plants would be omitted or mitigated. Proposed actions combined with planned and current land uses in the area are not expected to have a cumulative impact because of their low intensity and duration.

#### No Action Alternative

Direct and Indirect Impacts: Under this alternative no disease control efforts of prairie dog colonies would take place. GUPD populations may continue to decline and reduce overall species diversity.

Protective/Mitigation Measures: None.

Finding on the Public Land Health Standard for Threatened & Endangered species: This action will not affect any threatened, endangered, or sensitive species habitat, or have negative community level effects on any threatened, endangered, or sensitive species population.

### **3.3.2 VEGETATION (includes a finding on standard 3)**

Affected Environment: The vegetation communities within the proposed project area is that of a Loamy Park Ecological Site. Cool season plants dominate the site. The native plant community is about 80 percent (air-dry weight) grasses, 10 to 15 percent forbs and 3 to 5 percent shrubs. Three major bunchgrasses dominate the plant community: Arizona fescue, mountain muhly, and Parry oatgrass. These three comprise 75 percent of the total annual production of the site. Grasses making up lesser percentages are western wheatgrass, slender wheatgrass, bearded wheatgrass, prairie junegrass, needleandthread, Columbia needlegrass, letterman needlegrass, and nodding brome. A small amount of other grasses, a variety of forbs, and a few shrubs comprise the rest of the annual production. The estimated total production on these sites varies from 800 to 2,000 pounds per acre per year depending on the site and annual precipitation.

## Environmental Effects

### Proposed Action

Direct and Indirect Impacts: The Proposed Action would apply Deltamethrin dust directly into existing prairie dog burrows. There are no anticipated impacts to the plant species in the areas considered for treatment.

Protective/Mitigation Measures: None

Cumulative Impacts: None

### No Action Alternative

Direct and Indirect Impacts: If no action is taken, there would be no impact and the conditions would remain the same.

Protective/Mitigation Measures: N/A

Finding on the Public Land Health Standard for Plant and Animal Communities: The allotment was evaluated for Public Land Health Standards in 1998 and 2008. The assessments indicated that plant and animal communities are meeting Public Land Health Standards.

### **3.3.3 WILDLIFE AQUATIC (includes a finding on standard 3)**

Affected Environment: Treatment is not specifically proposed to be within wetland/aquatic habitat primarily because of the prairie dogs avoidance of wetlands to keep burrows from flooding, however this colony is adjacent to riparian habitat. During wet periods a small headwater stream develops north of the public land central to the overall treatment area. There is also impounded water in the vicinity. Given this proximity, there is some low probability of chorus frogs, northern leopard frogs, woodhouse toads, tiger salamanders, or several snake species possibly occupying some burrows temporarily during their adult or maturing life forms as the travel overland to various aquatic habitats.

## Environmental Effects

### Proposed Action

Direct and Indirect Impacts: There is a possibility of interaction between the Deltamethrin and these herpetofauna if they reside in a treated burrow, however only burrows actively being used by the prairie dogs will be treated reducing the probability of interaction. Overland movement generally occurs during very rainy periods when treatment would be avoided also reducing contact probability. The herpetofauna listed are typically seeking the true aquatic environments in the region and the probability of their occupancy of an active upland area burrow is low, but incidental use is possible. Population level negative affects are not anticipated even in the event of an individual contact, even if that contact resulted in an unlikely mortality. Low chemical concentration, treatment being at or near the dry surface of burrows, and the deltamethrin immobility because it binds to soils will likely prevent any direct or indirect impact.

Protective/Mitigation Measures: Treatment should not occur during periods where heavy precipitation over several days has the local area saturated.

Cumulative Impacts: Any mortality to species listed would be cumulative to other known issues that affect herpetofauna populations, however this action's impact is anticipated to be low, but more likely non-existent.

#### No Action Alternative

Direct and Indirect Impacts: Not treating the burrows eliminates any potential interaction of the species listed above and the chemical.

Protective/Mitigation Measures: None

Finding on the Public Land Health Standard for Plant and Animal Communities: This action will not affect any aquatic wildlife habitat, or have community level effects on any aquatic wildlife population.

### **3.3.4 WILDLIFE TERRESTRIAL (includes a finding on standard 3)**

#### Affected Environment:

**Big game:** The analysis area is used throughout the year by pronghorn antelope; however, distribution and abundance is subject to wide fluctuation primarily based on climatic conditions.

Mule deer use is confined primarily to areas in close proximity to woodlands on the outer perimeter of the prairie dog habitat and is overwhelmingly winter-use oriented. Concentrated use areas are not prevalent, but particularly in spring, larger groups of transient deer seek emerging annual growth, particularly along the margins of the analysis area.

The analysis area is used by elk during the winter and spring months. Elk will consistently use grassland dominated communities from late November through April, generally exploiting herbaceous and woody forage produced throughout the action area. There are sufficient natural sources of water to sustain low-density summer and calving use along the northern and eastern margins of the action area, but essentially no summer use takes place in areas potentially occupied by Gunnison's prairie dog.

**Raptors:** Ferruginous hawks, golden eagle, and red-tailed hawk are the most common breeding raptors that forage across these grasslands. Nests of other large raptors within the interior of the analysis area are scarce. The rock outcrops and woodlands around the periphery of the analysis area support nest sites associated with golden eagle, red-tailed hawk, and prairie falcon. Prey associated with these species is comprised predominantly of prairie dogs, cottontail rabbits, and big game and livestock carrion.

**Nongame:** Non-game bird and small mammal populations within the project locale are considered typical of semi-arid shortgrass prairie. The non-game community is composed of grassland associates such as Brewer's sparrow, loggerhead shrike, and horned lark, and mammals such as Gunnison's prairie dog, deer mouse, and northern grasshopper mouse (insectivorous, nocturnal). These small mammal and bird populations are important prey items for all raptors found in the area, and are integral with the maintenance of high levels of community diversity.

#### Environmental Effects

#### Proposed Action

#### Direct and Indirect Impacts:

**Big Game:** Deltamethrin is practically nontoxic to mammals (LC501 range of 6500-22,000 mg/kg) and because small amounts of product would be introduced directly into prairie dog burrow entrances, the avenues for exposure to deer, elk, and antelope would be practically nonexistent.

Deltamethrin application would occur during the summer and early fall months prior to winter use by deer and elk. Activity associated with insecticide application would be short term, low intensity, and very localized.

**Raptors:** Large raptors (hawks, eagles, owls) would have limited means of being exposed to Deltamethrin. Since their prey consists largely of herbivorous mammals, exposure would be limited to those trace amounts that prey ingest during grooming and that remain on the coats of those burrow-dwelling animals directly affected by dusting operations (e.g., cottontail rabbits and prairie dogs). Because the chemical is rapidly metabolized and excreted from mammals (compound eliminated from tissues in 2-4 days, remains up to 10 days in fat) and degrades relatively rapidly in alkaline soils, risk of exposure would be short term and should decline dramatically soon after initial treatment. Large raptors whose territories coincide with treatment areas would be expected to benefit slightly from increased abundance and consistent availability of prairie dog prey attending disease control, particularly ferruginous hawk and golden eagle.

**Nongame:** It is possible that invertebrates associated with treated burrow systems, as potential prey to certain nocturnal or fossorial nongame animals (e.g., burrowing owl and grasshopper mice), would be subjected to high levels of mortality—a condition that may persist over the course of treatment. It is expected that invertebrates from surrounding grassland and prairie dog habitats would recolonize the treatment areas such that former invertebrate abundance and composition would be attained soon (i.e., within 1 year) after control efforts were concluded. Because the invertebrate communities associated with prairie dog burrow systems are not considered central to the support of any known nongame species, short term and relatively minor reductions in the prey base would not be expected to result in dramatic localized declines of any species.

Studies referred to in Utah BLM's Deltamethrin application environmental analysis (UT-080-2001-217) indicated that relatively heavy application (0.308 g active ingredient per burrow) of permethrin, a related pyrethroid, on the Rocky Mountain Arsenal in Colorado, did not consistently affect insect orders that commonly form large fractions of burrowing owl and sage grouse diets. Coleopterans (beetles) seemed to decline in some plots with some sampling techniques, but not in other plots or even within the same plots using different techniques. There was no evidence for orthopteran (e.g. crickets and grasshoppers) declines.

There would be little opportunity for the vast majority of nongame birds associated with this project to be directly or indirectly exposed to deltamethrin. Although virtually all passerine birds are dependent on terrestrial invertebrates during the reproductive season, invertebrates associated with prairie dog burrows and serving as potential vectors of deltamethrin would be expected to venture out of these subsurface environments at night and remain largely unavailable to birds that forage during daylight hours. Because toxicity for birds is very low (LC<sub>50</sub> range of 5000-10,000 mg/kg) and the chemical is rapidly metabolized and excreted by animals (i.e., no demonstrated tendency to bioaccumulate), trace exposure to deltamethrin would not be expected to have any adverse effect on nongame birds.



Similarly, the majority of small mammals resident are granivorous or herbivorous and there should be little effective means for exposure except those small amounts that are ingested during grooming by those few burrow-dwelling animals cohabiting burrows that are directly dusted. Because Deltamethrin is practically nontoxic to mammals (LC<sub>50</sub> of 6500-22,000 mg/kg), mammals that are more prone to exposure (e.g., grasshopper mice) would need to, over a relatively short period of time, ingest that quantity of active ingredient used to treat at least 115 burrows. Again, this chemical is rapidly metabolized and excreted from mammals (compound eliminated from tissues in 2-4 days, remains up to 10 days in fat) and there is no evidence of bioaccumulation.

Protective/Mitigation Measures: None.

**Cumulative Impacts:** Activities associated with dusting operations are low intensity and short term in nature. This area experiences seasonal and low intensity livestock management practices and recreation use. These activities are generally asynchronous and, whether considered individually and collectively, represent casual use that would not accumulate in a cumulative context.

#### No Action Alternative

**Direct and Indirect Impacts:** Failing to apply insecticide across 700 acres of prairie dog colonies would prevent any level of inadvertent or indirect intake of Deltamethrin by resident wildlife. Because of the low toxicity and low levels of product applied, there is no reasonable likelihood that the influence of the no action alternative would be different than that associated with the proposed action.

Failing to apply insecticide would avoid short term reductions in populations of invertebrates occupying treated burrows systems. The prey base of those nocturnal and insectivorous animals that may prey on invertebrates that occupy or seek daytime refuge in prairie dog burrows would be maintained at prevailing levels in the short term.

Protective/Mitigation Measures: None.

**Finding on the Public Land Health Standard for Plant and Animal Communities:** This action will not affect any terrestrial wildlife habitat, or have negative community level effects on any terrestrial wildlife population.

### **3.3.5 MIGRATORY BIRDS**

**Affected Environment:** The shortgrass prairie system is dominated by two low-growing warm-season grasses, blue grama and buffalo grass; western wheatgrass is also present, along with taller vegetation, including widespread prickly-pear cactus and yucca, and cholla in the south. Sandsage prairie is found where sandy soils occur, and is dominated by sand sagebrush and the grasses sand bluestem and prairie sand-reed. Mixed grass (needle-and-thread, side-oats grama) and tallgrass (big bluestem, little bluestem, switchgrass) communities occur locally. Ecological forces that shape the shortgrass prairie landscape include fire, grazing, and climate.

The severity of the semi-arid climate and sharp differences in precipitation over relatively short distances produced contrasts in vegetation and advanced the formation of a variegated landscape.

Grassland birds thus evolved in a shifting landscape mosaic, with access to patches of vegetation in a variety of successional stages and conditions. Birds of Conservation Concern that may occur within the shortgrass/mixed grass habitat type may include:

Brewer's sparrow: This sparrow is common in sage brush habitat. While the proposed treatment area does not contain sage brush, Gunnison's prairie dog is known to inhabit such environments.

Grasshopper sparrow: Common locally in grasslands with scattered shrubs or weeds.

Chestnut-collared longspur: It can be common local and nests in dry prairies.

Swainson's hawk: The species is uncommon, nests in isolated trees and feeds primarily on small mammals and reptiles.

Prairie falcon: The species is uncommon and solitary. It nests on cliff edges and feeds mainly on small mammals, but also takes many birds and some insects.

Because much of the shortgrass prairie is too dry to farm without irrigation, the proportion of plowed land is not high and much of the region is still grassland. In Colorado, approximately 67% of the historical shortgrass prairie still exists, although some sources suggest that only 20% of the original shortgrass prairie exists in an unaltered state—the rest having been converted to cropland and urban development or degraded by overgrazing. Conversion to agriculture results in an absolute loss of grassland habitat, but much of the area is managed for grazing, which maintains grassland habitat but often with changes in plant height, vigor, and community composition.

### Environmental Effects

#### Proposed Action

Direct and Indirect Impacts: There would be little opportunity for the vast majority of migratory birds associated with this project to be directly or indirectly exposed to Deltamethrin. Although virtually all passerine birds are dependent on terrestrial invertebrates during the reproductive season, invertebrates associated with prairie dog burrows and serving as potential vectors of Deltamethrin would be expected to venture out of these subsurface environments at night and remain largely unavailable to birds that forage during daylight hours. Because toxicity for birds is very low (LC50 range of 5000-10,000 mg/kg) and the chemical is rapidly metabolized and excreted by animals (i.e., no demonstrated tendency to bioaccumulate), trace exposure to Deltamethrin would not be expected to have any adverse effect on nongame birds.

No take is anticipated of Swainson's hawk and prairie falcon by proposed actions. Due to a high mammal content in the diet of Swainson's hawks and prairie falcons during breeding season, efforts to bolster prairie dog populations and reduce associated die-offs of small mammals through disease control work would ostensibly enhance nest habitat conditions.

Protective/Mitigation Measures: Gunnison's prairie dog habitat is closely associated with grass and shrubland migratory birds. Therefore, spring disease abatement operations will be accomplished on foot minimizing nesting disturbance and potential take during the nesting season (May 15-July 15).

Cumulative Impacts: The proposed action is not seen to have an accumulative nature with existing or planned operations for migratory birds.

#### No Action Alternative

Direct and Indirect Impacts: Minimal affects associated with food or cover would change for Migratory birds if no action is taken. Prairie dog populations may be extirpated and local Swainson's hawk populations may decline from loss of prey base.

Protective/Mitigation Measures: None.

### **3.4 LAND RESOURCES**

#### **3.4.1 RANGE MANAGEMENT**

Affected Environment: Gunnison prairie dog active and historic colonies and potential habitat occur throughout the Royal Gorge Field Office. Under the proposed action, Deltamethrin would be delivered to up to 700 acres of active and historic prairie dog colonies within an active livestock grazing allotment. Cattle begin grazing in the vicinity of the proposed action area on the allotment in mid-April to mid-June and mid-December to mid-January.

#### Environmental Effects

##### Proposed Action

Direct and Indirect Impacts: As discussed in the Introduction & Background section above, Deltamethrin is practically nontoxic to mammals (LC<sub>50</sub><sup>1</sup> range of 6500-22,000 mg/kg) and because small amounts of product would be introduced directly into prairie dog burrow entrances, the avenues for exposure to domestic cattle would be practically nonexistent. Therefore, applications of Deltamethrin would have no impact on livestock health or livestock management.

Protective/Mitigation Measures: None

Cumulative Impacts: No cumulative negative effects on livestock health or management are expected as a result of the proposed action. In the long term, the proposed action is expected to result in healthier and larger populations of Gunnison prairie dogs throughout the Gunnison basin. Proper livestock grazing management is compatible with healthy populations of prairie dogs and prairie dogs do not represent any significant health risk to livestock.

#### No Action Alternative

Direct and Indirect Impacts: Under the no action alternative no proposed actions would take place and there would be no impact to livestock or rangeland management as a result of this alternative.

Protective/Mitigation Measures: None

### **3.5 CUMULATIVE IMPACTS SUMMARY**

Historically, GUPD had been found in South Park and other high elevation prairies throughout the RGFO. While GUPD are found throughout the RGFO in suitable habitats, the species is relatively rare. It can be found in portions of Fremont County, especially along the High Park road, the southern end of South Park along Badger Creek, and in Park, Huerfano, Chaffee and Lake Counties in the flat, gentle terrain with grassland habitat. Surveys have not been conducted that would provide more complete data on locations and extent of their range within RGFO. However, like most rodent species, locations of colonies and population levels can change dramatically from year to year

There are numerous subdivisions present near the proposed action area and new subdivisions are reasonably certain to be developed in the foreseeable future. Much of the landscape within and adjacent to each of these subdivisions, has been altered and impacted by unnatural vegetative succession due partly to long-term fire suppression, historical livestock grazing, construction of reservoirs, roads and recreation. It is possible that prairie dogs occur in or near these subdivisions and as a result, there could be some minimal cumulative effects.

Throughout the proposed action area, construction of homes on larger tracts (>35 acres) of private land can be expected to continue. In addition to livestock grazing, various recreational activities (hunting, OHV riding, mountain biking, snowmobiling, etc.) are ongoing and are reasonably certain to continue on the public and adjacent private lands. While not prairie dog habitat, woody vegetation manipulation (timber sales, habitat manipulation, fuels reduction, etc.) is also likely to continue on private and public lands near the project area

Cumulatively, many of the future actions planned on private lands may have some undetermined effect on prairie dogs and their habitat. The continued authorization of livestock grazing on public lands administered by the BLM is not anticipated to result in negative cumulative impacts to this species when viewed in conjunction with those activities currently occurring and reasonably certain to occur on adjacent State and private lands.

The defined project area is currently an improve category range allotment (Deer Haven Ranch). Grazing of public and private range lands is to continue into the foreseeable future. Poisoning of prairie dogs is not occurring on public land; however, it remains unknown if poisoning is occurring on private land. A shooting range with targets has been developed on the adjacent private lands. Therefore, it is likely Gunnison's prairie dog shooting is occurring on the surrounding private and public lands where populations currently exist.

Wildlife Terrestrial: Since all efforts associated with the proposed actions would be to avoid these species and would not defer current operations, it is not expected to increase cumulative impacts. The intent of this plan is to provide stable conditions for viable GUPD populations and in turn optimize species diversity within short grass ecosystems.

All proposed actions that could potentially have any direct or indirect impact to sensitive plants would be omitted or mitigated. Proposed actions combined with planned and current land uses in the area are not expected to have a cumulative impact because of their low intensity and duration.

Wildlife Aquatic: Any mortality to species listed would be cumulative to other known issues that affect herpetofauna populations; however this actions impact is anticipated to be low, but more likely nonexistent.

Range Management: No cumulative negative effects on livestock health or management are expected as a result of the proposed action. In the long term, the proposed action is expected to result in healthier and larger populations of Gunnison prairie dogs throughout the Gunnison basin. Proper livestock grazing management is compatible with healthy populations of prairie dogs and prairie dogs do not represent any significant health risk to livestock.

## **CHAPTER 4 - CONSULTATION AND COORDINATION**

### **4.1 LIST OF PREPARERS AND PARTICIPANTS**

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Please see Interdisciplinary Team Review list for BLM Participants

### **4.2 TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED**

Aaron and Mona Atwood - grazing permittee  
Raquel Wertsbaugh - Colorado Parks and Wildlife  
Darren Long – Bureau of Land Management  
Dan Tripp – Colorado Parks and Wildlife

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## **Finding Of No Significant Impact (FONSI)**

### **DOI-BLM-CO-200-2013-0038 EA**

Based on review of the EA and the supporting documents, I have determined that the project is not a major federal action and will not have a significant effect on the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects from any alternative assessed or evaluated meet the definition of significance in context or intensity, as defined by 43 CFR 1508.27. Therefore, an environmental impact statement is not required. This finding is based on the context and intensity of the project as described below:

#### **RATIONALE:**

**Context:** Deltamethrin pesticide has shown to be effective in controlling fleas and thus the spread of plague throughout prairie dog colonies (Biggins et al, 2010). Deltamethrin is a granular insecticide delivered by a wand as deep as possible into rodent burrows and then rotated to coat the perimeter soil and is then applied from there onto the rodents when they enter and exit the burrow system. The intent of a dusting effort is to reduce flea populations, as the major known vector of plague, in identified conservation priority colonies such that the risk of Gunnison's prairie dog (GUPD) exposure to plague would be significantly reduced. New dusting would support expanded Colorado Parks and Wildlife (CPW) research studying the potential efficacy of Deltamethrin, also commercially known as Delta Dust®, on treated compared to control areas. In a similar study, control colonies in northwestern Colorado were decimated by plague while the treatment colonies remained intact (Dan Tripp, CPW pers. comm.). These treatments would serve a conservation effort to keep this species from federal listing status and double as study areas to evaluate the efficacy of deltamethrin specifically within GUPD populations.

The current site specific proposed action will treat approximately 700 acres of GUPD colonies within the Royal Gorge Field Office, approximately 15 miles northwest of Canon City, Colorado off of High Park Road. GUPD colonies would be treated annually with a 0.05% formulation of Deltamethrin (Delta Dust), a synthetic pyrethoid insecticide labeled for the control of fleas in rodent burrows. Treatment would consist of individually metering 4 grams of product (0.002 grams active ingredient (a.i.)) into the entrance of prairie dog burrows with shoulder-carried application equipment or motorized all-terrain vehicles (ATV). Application would be conducted by, or under the direct supervision of BLM biologists and/or CPW Wildlife Health Program staff appropriately certified as a pesticide applicator in Colorado. Treatment activities would occur over a 2-3 week period between March and October by personnel appointed by the CPW. Dusting would also occur on identified vacant prairie dog colonies prior to GUPD relocations. Treatments would continue annually as needed or until a more effective method is developed. The actions impacts are not considered to reach a level beyond local significance.



**Intensity:** I have considered the potential intensity/severity of the impacts anticipated from the Application of Deltamethrin Insecticide to Control Fleas in Prairie Dog Burrows Project decision relative to each of the ten areas suggested for consideration by the CEQ. With regard to each:

**Impacts that may be beneficial and adverse:** Deltamethrin pesticide has shown to be effective in controlling fleas and thus the spread of plague throughout prairie dog colonies (Biggins et al, 2010). The intent of a dusting effort is to reduce flea populations, as the major known vector of plague, in identified conservation priority colonies such that the risk of GUPD exposure to plague would be significantly reduced. New dusting would support expanded CPW research studying the potential efficacy of deltamethrin, also commercially known as Delta Dust®, on treated compared to control areas. In a similar study, control colonies in northwestern Colorado were decimated by plague while the treatment colonies remained intact (Dan Tripp, CPW pers. comm.). These treatments would serve a conservation effort to keep this species from federal listing status and double as study areas to evaluate the efficacy of deltamethrin specifically within GUPD populations.

There is a possibility of interaction between the Deltamethrin and these herpetofauna if they reside in a treated burrow; however, the herpetofauna listed are typically seeking the true aquatic environments in the region and the probability of their occupancy of an active upland area burrow is low, but incidental use is possible. Population level negative effects are not anticipated even in the event of an individual contact, even if that contact resulted in an unlikely mortality. Low chemical concentration, treatment being at or near the dry surface of burrows, and the deltamethrin immobility because it binds to soils will likely prevent any direct or indirect impact.

**Public health and safety:** The proposed action will reduce the probability of the presence of plague in the natural environment by killing fleas, the primary vectors of plague.

**Unique characteristics of the geographic area:** None present.

**Degree to which effects are likely to be highly controversial:** There is no disagreement or controversy among ID team members or reviewers over the nature of the effects of the action on resource values.

**Degree to which effects are highly uncertain or involve unique or unknown risks:** The action has been conducted routinely throughout the range of prairie dogs. There are no unique or unknown risks with uncertain effects from the Proposed Action to the natural resources found in project area.

**Consideration of whether the action may establish a precedent for future actions with significant impacts:** This decision is like one of many that have previously been made at other Bureau of Land Management field offices (i.e. White River, San Luis Valley, and Gunnison). Application of pesticides through the parameters described in a PUP is occasionally conducted on public lands. The decision is within the scope of the Resource Management Plan and is not expected to establish a precedent for future actions. The decision does not represent a decision in principle about a future consideration.

**Consideration of whether the action is related to other actions with cumulatively significant impacts:** Wildlife Terrestrial: Since all efforts associated with the proposed actions would be to avoid these species and would not defer current operations, it is not expected to increase cumulative impacts. The intent of this plan is to provide stable conditions for viable GUPD populations and in turn optimize species diversity within short grass ecosystems. All proposed actions that could potentially have any direct or indirect impact to sensitive plants would be omitted or mitigated. Proposed actions combined with planned and current land uses in the area are not expected to have a cumulative impact because of their low intensity and duration.

Wildlife Aquatic: Any mortality to species listed would be cumulative to other known issues that affect herpetofauna populations; however this actions impact is anticipated to be low, but more likely nonexistent.

Range Management: No cumulative negative effects on livestock health or management are expected as a result of the proposed action. In the long term, the proposed action is expected to result in healthier and larger populations of Gunnison prairie dogs throughout the Gunnison basin. Proper livestock grazing management is compatible with healthy populations of prairie dogs and prairie dogs do not represent any significant health risk to livestock.

**Scientific, cultural or historical resources, including those listed in or eligible for listing in the National Register of Historic Places:** None present.

**Threatened and endangered species and their critical habitat:** Activities associated with dusting operations are low intensity and short term in nature. The probability of species being present and/or impacted by project activity is minimal to none.

**Any effects that threaten a violation of Federal, State or local law or requirements imposed for the protection of the environment:** The proposed action conforms with the provisions of NEPA (U.S.C. 4321-4346) and FLPMA (43 U.S.C. 1701 et seq.) and is compliant with the Clean Water Act and The Clean Air Act, the National Historic Preservation Act, Migratory Bird Treaty Act (MBTA) and the Endangered Species Act.

NAME OF PREPARER: Matthew Rustand

SUPERVISORY REVIEW: Melissa K.S. Garcia

NAME OF ENVIRONMENTAL COORDINATOR: /s/ Martin Weimer

DATE: 4/17/13

SIGNATURE OF AUTHORIZED OFFICIAL:

/s/ Keith E. Berger

Keith E. Berger, Field Manager

DATE SIGNED: 6/17/13

APPENDICES:

**UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
ROYAL GORGE FIELD OFFICE**

**DECISION RECORD**

**Application of Deltamethrin Insecticide to Control Fleas in Prairie Dog Burrows  
DOI-BLM-CO-200-2013-0038-EA**

**DECISION:** It is my decision to authorize the Proposed Action as described in the attached EA. The proposed action is to treat approximately 700 acres of GUPD colonies within the RFGO (Figure 3). GUPD colonies would be treated annually with a 0.05% formulation of Deltamethrin (Delta Dust), a synthetic pyrethroid insecticide labeled for the control of fleas in rodent burrows. Treatment would consist of individually metering 4 grams of product (0.002 grams active ingredient (a.i.)) into the entrance of prairie dog burrows with shoulder-carried application equipment or motorized all-terrain vehicles (ATV). Application would be conducted by, or under the direct supervision of BLM biologists and/or CPW Wildlife Health Program staff appropriately certified as a pesticide applicator in Colorado. Treatment activities would occur over a 2-3 week period between March and October by personnel appointed by the CPW. Treatments would continue annually as needed or until a more effective method is developed. This decision is contingent on meeting all mitigation measures and monitoring requirements listed below.

This office completed an Environmental Assessment and reached a Finding of No Significant Impact indicating that the action has been analyzed in the EA and the selected alternative will have no significant effect therefore an EIS will not be prepared

**RATIONALE:** The application of deltamethrin will reduce the probability of extirpation of Gunnison's prairie dog colonies due to plague. These treatments would serve a conservation effort to keep this species from federal listing status and double as study areas to evaluate the efficacy of deltamethrin specifically within Gunnison's prairie dog populations.

**MITIGATION MEASURES\MONITORING:**

- In an effort to eliminate negative indirect effects to the Arkansas aquatic biota, all actions would be accomplished outside of a 50 meter buffer from live water and any foreseeable contributing water sources (seeps and springs) to the Arkansas watershed unless an impermeable barrier exists (i.e. paved roads or dams where percolation is not possible).
- Burrowing owl burrows encountered during dusting operations with evidence of burrowing owl occupancy (e.g. white wash, pellets, feathers) will not be treated.
- Minimize dust from drifting if windy conditions exist to avoid incidental contact with any sensitive or threatened plant species in the area.

- Treatment should not occur during periods where heavy precipitation over several days has the local area saturated.
- Gunnison's prairie dog habitat is closely associated with grass and shrubland migratory birds. Therefore, spring disease abatement operations will be accomplished on foot minimizing nesting disturbance and potential take during the nesting season (May15-July 15).
- A clearance survey will be conducted prior to ATV/UTV use if proposed action is to occur during the mountain plover nesting season (April 1 – June 30).

**PROTEST/APPEALS:** This decision shall take effect immediately upon the date it is signed by the Authorized Officer, and shall remain in effect while any appeal is pending unless the Interior Board of Land Appeals issues a stay (43 CFR 2801.10(b)). Any appeal of this decision must follow the procedures set forth in 43 CFR Part 4. Within 30 days of the decision, a notice of appeal must be filed in the office of the Authorized Officer at the Royal Gorge Field Office, 3028 E Main Street, Canon City, Colorado, 81212. If a statement of reasons for the appeal is not included with the notice, it must be filed with the Interior Board of Land Appeals, Office of Hearings and Appeals, U.S. Department of the Interior, 801 North Quincy St., Suite 300, Arlington, VA 22203 within 30 days after the notice of appeal is filed with the Authorized Officer.

[http://www.blm.gov/wo/st/en/prog/planning/news/webguide/document\\_pages/8\\_6\\_program-specific.html](http://www.blm.gov/wo/st/en/prog/planning/news/webguide/document_pages/8_6_program-specific.html)

**SIGNATURE OF AUTHORIZED OFFICIAL:**

/s/ Keith E. Berger  
Keith E. Berger, Field Manager

**DATE SIGNED:** 6/17/13

**ATTACHMENTS:**